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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/590,382
Filing Date: June 20, 2007
Appellant(s): TELIMAA ET AL.

Bryan H. Davidson
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6 July 2009 appealing from the Office action mailed 4 February 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Claims 10, 17-18 and 21 are no

longer rejected under 35 USC 112 as the office action mailed 4 February 2009 entered the amendment to correct the issues regarding a lack of antecedent basis. Claims 10-21 stand rejected under 35 USC 103(a) as being unpatentable over Kriz (US 2002/0005075) as stated in the previous action.

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. Claims 10, 17-18 and 21 are no longer rejected under 35 USC 112 as the office action mailed 4 February 2009 entered the amendment to correct the issues regarding a lack of antecedent basis.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 2002/0005075	Kriz et al.	1-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 10-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kriz US PG Pub 2002/0005075 A1 (hereinafter referred to as Kriz).

Regarding **claim 10**, Kriz discloses a hand-held pipette comprising a calibration system. Figure 2 shows a block diagram of the system comprising a "control system" 46, a “user interface” 32, and an electronic display 35 in which volumes are shown. The system comprises a motor driven piston for controlling aspiration or dispensing of the pipette (paragraph [0019] and figures 1 and 2). The pipette further comprises a method of calibration of the system which is described in detail in paragraphs [0025]-[0032]. During calibration, a "real volume obtained with an indicated volume” is input to the system and is adjusted to the desired target. The volume is then measured by the system and a calibration factor is set based on the input values. The process of calibration is used for future readings, thus the calibration factor would be stored in the memory of the system as claimed. Paragraph [0033] describes the adjustment of the piston/motor assembly during the calibration process to correct for the error in the readings of the pipette, thus corresponding to the real dosing volume. The apparatus of Kriz does not explicitly disclose a calibration resolution of less than 0.05%, however, as the structural limitations of the claim are met by the Kriz reference, the reference reads on the claim. It is noted however that as the calibration resolution is a function of the maximum dosing volume of the pipette, by enlarging the capacity of the pipette, a greater precision could be achieved. Further, the courts have held that apparatus claims must be structurally distinguishable from the prior art in terms of structure, not function. See In re Danley, 120 USPQ 528, 531 (CCPA 1959); and Hewlett-Packard Co. 1I. Bausch and Lomb, lnc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). The Courts have held that the manner of operating an apparatus does not differentiate an apparatus

claim from the prior art, if the prior art apparatus teaches all of the structural limitations of the claim. See Ex Parte Masham, 2 USPQ2d 1647 (BPAI 1987).

Regarding **claim 11**, paragraph [0034] of Kriz discloses using calibration to control the stop position of the piston which reads on the "stroke length" as claimed in that the distance from the start position to the calculated stop position is the stroke length.

Regarding **claim 12**, figures 1 and 2 both show a motor in the system for controlling the piston (paragraphs [0019] and [0046]). Further, the method disclosed in the background of the invention discusses correction of the stroke length of the piston based on the calibration settings.

Regarding **claim 13**, paragraph [0024] of Kriz describes an Adjust function in which the volume desired for dosing is selected.

Regarding **claim 14**, paragraph [0034] describes the calibration technique as involving multiple aspirations of the pipette and calibrating based on the actual quantity of fluid, thus reading on the at least two indicated volumes.

Regarding **claim 15,** Kriz discloses the invention in its entirety but does not explicitly mention calibration calculation with the real volume linearly dependent on the set volume. The background of the present invention states that "calibration is generally performed assuming that the set volume and the dosing volume are linearly interdependent" or dependent on one another. It would have been obvious to one of ordinary skill in the art at the time of invention to use the same calibration method as

disclosed since it was a well known method at the time of invention for yielding accurate results.

Regarding **claim 16**, paragraph [0010] of Kriz describes the use of a processor and memory for storing presets for piston stop positions and volume compensation algorithms. Paragraph [0035] further describes the preset volumes which can be loaded into the memory of the processor. Since the various volume measurement settings are stored in the memory to save time in changing settings, it would have been obvious to one of ordinary skill in the art at the time of invention to store calibration settings as well in a similar manner for the same reasons. Storing such data in "parallel" as claimed would allow for each piece of data to be accessed independently of the others depending on the volume which is being measured.

Regarding **claim 17**, Kriz discloses a hand-held pipette comprising a calibration system. Figure 2 shows a block diagram of the system comprising a controller 46 ("control system"), a “user interface” 32, and an electronic display 35 in which volumes are shown. The system comprises a motor driven piston for controlling aspiration or dispensing of the pipette (paragraph [0019] and figures 1 and 2). The pipette further comprises a method of calibration of the system which is described in detail in paragraphs [0025]-[0032]. During calibration, a "real volume obtained with an indicated volume” is input to the system and is adjusted to the desired target. The volume is then measured by the system and a calibration factor is set based on the input values. The process of calibration is used for future readings, thus the calibration factor would be

stored in the memory of the system as claimed. Paragraph [0033] describes the adjustment of the piston/motor assembly during the calibration process to correct for the error in the readings of the pipette, thus corresponding to the real dosing volume. The apparatus of Kriz does not explicitly disclose a calibration resolution of less than 0.05%, however, as the structural limitations of the claim are met by the Kriz reference, the reference reads on the claim. It is noted however that as the calibration resolution is a function of the maximum dosing volume of the pipette, by enlarging the capacity of the pipette, a greater precision could be achieved. Further, the courts have held that apparatus claims must be structurally distinguishable from the prior art in terms of structure, not function. See In re Danley, 120 USPQ 528, 531 (CCPA 1959); and Hewlett-Packard Co. 1l. Bausch and Lomb, lnc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). The Courts have held that the manner of operating an apparatus does not differentiate an apparatus claim from the prior art, if the prior art apparatus teaches all of the structural limitations of the claim. See Ex Parte Masham, 2 USPQ2d 1647 (BPAI 1987).

The background of the invention as admitted by the applicant discloses a method of dual point calibration in which input corresponding to real volumes obtained with two volume settings ("real volumes obtained with at least tow indicated volumes") is entered into the system and the control system calculates and changes the value of the two constants in a calibration formula ("calibration settings") based on this real volume. These calibration settings would be stored in a memory in order to be used effectively and the "stroke length or volume indicated on the display" is set so that the dosed

volume equals the indicated with maximum accuracy. It would have been obvious to one of ordinary skill in the art at the time of invention to combine the method of calibration as disclosed by the applicant in the background with the method of Kriz in order to calibrate the pipette with maximal accuracy. The method as admitted discloses the use of calibration on a pipette with a volume of 200 micro liters in which the precision is set to 0.2 micro liters. However it would have been obvious to one of ordinary skill in the art at the time of invention to use the method on any size pipette with a similar precision which could generate much smaller resolutions as the volume increased (i.e. 1000 micro liters with 0.2 micro liter precision would yield a resolution of 0.02%). Further, the specification of the present application does not disclose how a resolution of 0.1%, 0.05% or 0.01% is achieved over the prior art methods. It was known in the art that the greater precision due to a reduced error is beneficial in returning accurate and reliable results, therefore merely indicating that a lower resolution is desired is would have been obvious to one of ordinary skill in the art at the time of invention.

Regarding **claim 18**, Kriz discloses a hand-held pipette and method for operation, including a calibration system. Figure 2 shows a block diagram of the system comprising a controller 46 ("control system"), a “user interface” 32, and an electronic display 35 in which volumes are shown. The system comprises a motor driven piston for controlling the volume of liquid aspired or dispensed from the pipette (paragraph [0019] and figures 1 and 2). The pipette further comprises a method of calibration of the

system which is described in detail in paragraphs [0025]-[0032]. During calibration, a "real volume obtained with an indicated volume" is input to the system and is adjusted to the desired target. The volume is then measured by the system and a calibration factor is set based on the input values. The process of calibration is used for future readings, thus the calibration factor would be stored in the memory of the system as claimed. Paragraph [0033] describes the adjustment of the piston/motor assembly during the calibration process to correct for the error in the readings of the pipette, thus corresponding to the real dosing volume. The specification of the present application does not disclose how a resolution of 0.1%, 0.05% or 0.01% is achieved over the prior art methods. It was known in the art that the greater precision due to a reduced error is beneficial in returning accurate and reliable results, therefore merely indicating that a lower resolution is desired is would have been obvious to one of ordinary skill in the art at the time of invention. Additionally, as the resolution is defined as being a function of the measured volume and maximum dosing volume of the pipette, by increasing the dosing volume, a calibration resolution of 0.1% could easily be attained.

Paragraph [0010] of Kriz describes the use of a processor and memory for storing presets for piston stop positions and volume compensation algorithms. Paragraph [0035] further describes the preset volumes which can be loaded into the memory of the processor. Since the various volume measurement settings are stored in the memory to save time in changing settings, it would have been obvious to one of ordinary skill in the art at the time of invention to store calibration settings as well in a similar manner for the same reasons. Storing such data in "parallel" as claimed would

allow for each piece of data to be accessed independently of the others depending on the volume which is being measured.

Regarding **claim 19**, as with claim 10, the apparatus of Kriz does not explicitly disclose a calibration resolution of less than 0.01%, however, as the structural limitations of the claim are met by the Kriz reference, the reference reads on the claim.

Regarding **claim 20**, the background of the invention as admitted by the applicant discloses a method of dual point calibration in which input corresponding to real volumes obtained with two volume settings ("real volumes obtained with at least two indicated volumes") is entered into the system and the control system calculates and changes the value of the two constants in a calibration formula ("calibration settings") based on this real volume.

Regarding **claim 21**, Kriz discloses a hand-held pipette comprising a calibration system. Figure 2 shows a block diagram of the system comprising a controller 46 ("control system"), a “user interface” 32, and an electronic display 35 in which volumes are shown. The system comprises a motor driven piston for controlling aspiration or dispensing of the pipette (paragraph [0019] and figures 1 and 2). The pipette further comprises a method of calibration of the system which is described in detail in paragraphs [0025]-[0032]. During calibration, a "real volume obtained with an indicated volume” is input to the system and is adjusted to the desired target. The volume is then measured by the system and a calibration factor is set based on the input values. The

process of calibration is used for future readings, thus the calibration factor would be stored in the memory of the system as claimed. The apparatus of Kriz does not explicitly disclose a calibration resolution of less than 0.1%, however, as the structural limitations of the claim are met by the Kriz reference, the reference reads on the claim. Further, the courts have held that apparatus claims must be structurally distinguishable from the prior art in terms of structure, not function. See In re Danley, 120 USPQ 528, 531 (CCPA 1959); and Hewlett-Packard Co. 1I. Bausch and Lomb, Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). The Courts have held that the manner of operating an apparatus does not differentiate an apparatus claim from the prior art, if the prior art apparatus teaches all of the structural limitations of the claim. See Ex Parte Masham, 2 USPQ2d 1647 (BPAI 1987).

The background of the invention as admitted by the applicant disclsoes a method of "single point" calibration in which an input corresponding to a real volume is entered into the system and the control system calculates and changes the value of the correction coefficient ("calibration settings") based on this real volume. These calibration settings would be stored in a memory in order to be used effectively and the "stroke length or volume indicated on the display" is set so that the dosed volume equals the indicated with maximum accuracy. It is also noted that the set volume and the dosing volume are linearly interdependent as claimed and th eangular coefficient of the linear equation is present in the equation provided. The method as admitted discloses the use of calibration on a pipette with a volume of 200 micro liters in which the precision is set to 0.2 micro liters yielding a resolution of 0.1%. It would have been

obvious to one of ordinary skill in the art at the time of invention to combine the method of calibration as disclosed by the applicant in the background with the method of Kriz in order to calibrate the pipette with maximal accuracy.

(10) Response to Argument

The following is a response to arguments presented by Appellant(s) applicable to the appealed claims:

Appellant's arguments with regard to the Kriz reference state that Kriz is unable to fulfill the claimed limitations in present application. In particular, attention is drawn to the calibration function limitations in that the claimed pipette "has a calibration resolution of less than 0.05%." Appellants argue on page 11 of the brief that the calibration resolution "means the ratio of the precision of the measured volume to the target volume." However the specification of the present application defines the calibration resolution as "the precision of the measured volume to be fed relative to the maximum dosing volume". By the definition provided within the specification, keeping a precision constant (for example 0.1µl as is noted in the brief on page 12) and increasing the maximum dosing volume of the pipette would thereby lower the "calibration resolution" accordingly. For a precision of 0.1µl, the maximum dosing volume of a pipette would need to be greater than 200µl to yield a resolution of 0.05% as claimed $\left(\frac{0.1}{200} = 0.0005 = 0.05\%\right)$. Appellant further states that the Kriz apparatus during calibration uses a measured volume fed with a precision of 0.1µl and, as the only exemplified calibration volume noted in the reference is 100µl, the calibration resolution

must be at most 0.1%. Examiner argues that one of ordinary skill in the art at the time of invention would be capable of modifying the pipette apparatus of Kriz to increase the maximum dosing volume to a greater level than the 100µl mentioned depending on the desired dosages for sampling. Further, there is nothing aside from such a modification in maximum dosing volume that would prevent the calibration function of the Kriz pipette from functioning as claimed when the maximum dosing volume is increased. As Appellant mentions, a known pipette is described on page 12 of the brief which uses a maximum dosing volume of 200µl, it is understood that *any* increase in this dosing volume, however minute, would provide a calibration resolution of less than 0.05% when combined with Kriz and a precision of 0.1µl, and it is further noted that pipettes with dosing volumes greater than 200µl readily existed at the time of invention, which would provide a motivation for increasing (if necessary) the dosing volume of Kriz.

With regard to claim 14, appellant argues that the Kriz reference fails to teach a calibration function comprising input of real volumes obtained with at least two indicated volumes. It is noted that paragraph 0034 of Kriz discloses a calibration method in which and real volume is input into the system and a series of actual volumes are averaged. Thus, the real volumes are compared with the indicated volume at least twice, for an average, meaning that at least two indicated volumes are used in the comparison.

With regard to claim 16, paragraph [0010] of Kriz describes the use of a processor and memory for storing presets for piston stop positions and volume compensation algorithms. Paragraph [0035] further describes the preset volumes which can be loaded into the memory of the processor. Since the various volume

measurement settings are stored in the memory to save time in changing settings, it would have been obvious to one of ordinary skill in the art at the time of invention to store calibration settings as well in a similar manner for the same reasons. Storing such data in "parallel" as claimed would allow for each piece of data to be accessed independently of the others depending on the volume which is being measured.

Appellant further argues on page 13 that "[n]o volume is actually measured by the Kriz et al system, but instead a volume is input and the calibration factor (angular coefficient) is calculated." Paragraph 0034 of Kriz states however, that volume measurements are taken during the calibration process and used to determine the measured volume and therefore an actual volume would indeed be measured.

With regard to the arguments on page 14 of the appeal brief that the calibration resolution is a structural control aspect of the pipette, Examiner notes that while the calibration resolution may be derived from the structural limitations of the pipette system, there is no significant structural difference between the pipette as claimed in claim 1 of the presently filed application and that of Kriz which would allow for the claimed invention to have the advantage of the calibration resolution claimed. Further, Appellant has not provided proof that the present application is distinguishable from the Kriz reference, but has rather merely sought to assign arbitrary values to the Kriz reference which would disprove such a calibration resolution from existing.

Page 14 addresses the issues of precision and the function of maximum dosing volume in the system, however Examiner disagrees that increasing the volume of the pipette would change the precision of the system, as a precision of 0.1µl would likely

remain when increasing the dosing volume of the system from for example 200µl to 200.01µl, thus creating a calibration resolution of 4.999%. As previously stated, the relationship between calibration resolution and maximum dosing is described on page 4 of the application.

Claims 17 and 20 essentially correspond to claims 11 and 14 which have been addressed above. Therefore, calibration with two indicated volumes can be achieved in a similar manner as previously discussed. The claims as written do not comprise limitations as to the method by which the constants used in calibration are calculated, and in fact, the constants are not mentioned in claim at all, but rather real volumes and indicated volumes are mentioned which are inputted into the system of the prior art in a manner consistent with that which is claimed.

Page 16 of the Appeal Brief discusses claim 16 in further detail by stating that the prior art of record fails to teach "the use of a processor for storing presets for piston stop positions and volume compensation algorithms". Claim 16 as presented does not disclose such limitations and it appears as though Appellant is arguing narrower than what is claimed. As it stands, Examiner's previous comments on claim 16 still apply.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Mark Shabman/

Examiner, Art Unit 2856

Conferees:

/Hezron Williams/

Supervisory Patent Examiner, Art Unit 2856

Jose G Dees

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T-QAS TC 2800